

USSR

UDC 621.762.002.5(088.8)

CHERNOV, G. K., and VOLOSYUK, Yu. M.

"Anode Device for Production of Metals and Alloys"

USSR Author's Certificate No. 266740, Filed 23/10/67, Published 23/07/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract
No. 2 G473 P)

Translation: The anode device consists of a magnetic core and current conductor. The magnetic core is equipped with a corrosion-resistant, current-conducting envelope to simplify the technological cycle of refining powdered ferromagnetic materials.

1/1

USSR

UDC 613.2+615.917:632.951.2

VOLOTNYY, A. V., and YURKOVA, Z. F., Laboratory for Hygiene and the Individual Toxicology of Insecticides (Director, Doctor of Medical Sciences Ye. I. Spynu) and Laboratory of the Analytical Chemistry of Pesticides (Manager, Doctor of Biological Sciences M. A. Klisenko) All-Union Scientific Research Institute of Hygiene and the Toxicology of Pesticides, Polymers, and Plastics, Kiev

"An Evaluation of the Toxicology and Hygiene of Gardona, a New Organophosphorus Insecticide"

Moscow, Voprosy Pitaniya, No 6, Nov/Dec 73, pp 60-65

Abstract: The toxicity of gardona was shown to be rather low (the sub-threshold dose is 0.6 mg/kg) but having a wide range of effects. The toxicological properties are more advantageous than those of most other organophosphorus compounds. It does not accumulate in the tissue to any significant degree and will not be absorbed through the skin. The residual amounts of gardona on cabbage was undetectable 10 days after treatment and on apples, 15-20 days. The residence time depended on the weather. In order to examine chronic exposure to gardona, it was introduced into the stomach where in doses of 15 mg/kg it reduced the activity

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USSR

VOLOTNYY, A. V., and YURKOVA, Z. F., Voprosy Pitaniya, No 6, Nov/Dec 73, pp 60-65.

of cholinesterase on the average to about 80 percent of that of the control group. In only one case was an increase observed. In doses of 3 mg/kg, the threshold dose, the activity of cholinesterase averaged closer to that of the control group, with both higher and lower values observed. Gardona also influenced the liver and the central nervous system.

2/2

USSR

UDC: 621.317.7

DOLUKHANOV, M. P., VOLTOVSKAYA, N. K., Leningrad Electrical Engineering
Institute of Communications

"An Installation for Hydroacoustic Modeling"

USSR Author's Certificate No 259273, filed 27 Mar 68, published 24 Apr 70 (from
RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A280 P)

Translation: For experimental investigation of conditions of propagation of radio waves and radar reflection from marine targets on the basis of hydro-acoustic models, an installation is used which contains a tank with a liquid in which a transmitter and receiver of ultrasonic oscillations are immersed. The surface of the tank is covered with a rigid curved plastic film which simulates the curvature of the earth. A model of the screening barrier or target is placed on the film. The source of ultrasonic oscillations simulates a transmitting antenna. The object being studied produces secondary emission which is picked up by the hydroacoustic receiver. The surface of the liquid has a convex shape with respect to the waves propagating in it, and therefore diffraction effects may be taken into account when setting up an experiment.

Three illustrations. A. I.

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USSR

UDC 577.3:541.14:541.144.7:547,96:581.188.5:591.185.6

KONEV, Sergey Vasil'yevich, and VOLOTOVSKII, Igor' Dmitrievich; Laboratory of Biophysics and Isotopes, Academy of Sciences, Belorussian SSR

Vvedeniye v molekulyarnuyu fotobiologiyu (Introduction to Molecular Photobiology), Minsk, "Nauka i Tekhnika," 1971

Translation: Annotation: The book represents the first attempt in the Soviet and world literature at a systematic examination of the main questions and trends of modern photobiology at the molecular and membrane levels. It examines both physiological (photosynthesis, photoreception, phototaxis, and others) and destructive damaging photobioeffects, leading either to death of the cell or to disturbance or modification of its functions (photomutagenesis, photolethality, etc.). Partial contribution to the biceffect of singlet and triplet electron-excited states of chromophores, processes of migration between them, primary, intermediate labile, and terminal stable photoproducts, and mechanisms of dark intensification, constitute a wide range of problems discussed in the book. Special attention in this monograph is paid to the role of membranes in photobiology.

The book is intended for biophysicists, biochemists, physiologists, cytologists, geneticists, radiobiologists, and for postgraduates and students of corresponding specialties. 232 pages, 33 figures, 4 tables, 969 references.

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USSR

KONEV, Sergey Vasil'yevich, and VOLOTOVSKIY, Igor' Dmitriyevich, Vvedeniye v molekulyarnuyu fotobiologiyu, Minsk, "Nauka i Tekhnika," 1971.

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USSR

KONEV, Sergey Vasil'yevich, and VOLOTOVSKIY, Igor' Dmitriyevich, Vvedeniye v molekulyarnuyu fotobiologiyu, Minsk, "Nauka i Tekhnika," 1971.

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Acc. Nr: APO043670

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 387-393

ANISOTROPY OF THE CRITICAL CURRENT IN A SINGLE CRYSTAL
OF A SUPERCONDUCTING ALLOY Pb-In

V. G. Volotskaya, N. Ya. Fozel'

Anisotropy of the critical current of cylindrical single crystals of the superconducting alloys Pb - 24 at.% In and Pb - 12 at.% In, is investigated in a broad range of field strengths $H_{ci} < H < H_{cs}$ and for various treatments of the surface. The long axis of the sample, along which the transport current is directed, coincides either with direction [100] or with direction [110]; the magnetic field is perpendicular to the current. Measurements of critical current anisotropy in etched samples shows that the character of the anisotropy reflects the crystallographic symmetry of the sample. Critical current maxima are observed when the magnetic field is oriented along the directions <100>, <110> and <111>. The dependence of the anisotropy magnitude on magnetic field strength is studied. A major role in determining the magnitude of the critical current is played by surface pinning of the vortices and the anisotropy observed is related to the state of the surface layer of the single crystals.

REEL/FRAME
19770074

2/DT

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--VEGETATION PRODUCTIVITY VARIATION IN CONNECTION WITH HYDROTHERMAL
CONDITIONS -U-
AUTHOR--VOLCVOLEV, V.R.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BILOGICHESKAYA, 1970, NR 3,
PP. 374-381
DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--SOIL CHEMISTRY, BIOGEOGENOSIS, ATMOSPHERIC HUMIDITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0489

STEP NU--UR/0216/70/000/003/0374/0381

CIRC-ACCESSION NC--APO126241

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APO126241

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF ENERGY CONSUMPTION CONNECTED WITH SOIL FORMATION (Q) ON THE RADIATION BALANCE OF THE EARTH'S SURFACE R AND RELATIVE HUMIDITY K: Q EQUALS RE L OVER MK DISCOVERED BY THE AUTHOR CONTAINS THE PARAMETER M. THE LATTER MAY BE CONSIDERED AS REFLECTING THE "BIOLOGICAL ACTIVITY" OF THE BIOGEOCENOSE, WHICH COULD BE CONFIRMED BY SOME PRELIMINARY COMPARISONS. APPEARANCE IN RECENT PAPERS OF NEW DATA ON THE PRODUCTIVITY OF A SERIES OF BIOGEOCENOSSES ENTITLES ONE TO CONTINUE THE INVESTIGATION OF THE DEPENDENCE JUST MENTIONED A DEFINITE CONNECTION BETWEEN THE POSSIBLE ENERGY EXPENDITURES CONNECTED WITH SOIL FORMATION AND THE AMOUNT OF A YEARLY INCREMENT OF THE PLANT MASS (V) AND DESCRIBED BY THE FORMULA: V EQUALS Q PRIMEN HAS BEEN FOUND. THE PARAMETER IN THIS FORMULA REFLECTS THE INFLUENCE OF HUMIDITY CONDITIONS ON THE PRODUCTIVITY OF PLANT ASSOCIATIONS. THE LATTER DEPENDENCE APPEARS AL THE MORE SIGNIFICANT AS IT REFLECTS IN A MATHEMATICAL FORM THE CONNECTION BETWEEN THE PROCESS OF SOIL FORMATION AND VEGETATION.

FACILITY: INSTITUTE OF SOIL SCIENCE AND AGROCHEMISTRY, ACADEMY OF SCIENCES, AZERBAIJAN SSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ANDROSTANE DERIVATIVES. XVII. STEROIDAL, 3,2,C, PYRAZOLES -U-

AUTHOR--(02)-VELCHEVSKIY, L.N., KUZMENKO, I.I.

COUNTRY OF INFO--USSR

SOURCE--Khim. Prir. Soedin. 1970, 6(1), 31-3

DATE PUBLISHED----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANDROGEN, CHEMICAL SYNTHESIS, PYRAZOLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1302

STEP NO--UR/0393/70/006/001/0031/0033

CIRC ACCESSION NO--A00133334

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE—20NOV70

CIRC ACCESSION NO—APO133334

ABSTRACT/EXTRACT—(U) GP-0— ABSTRACT. SYNTHESIS OF
17BETA,HYDROXYANDROSTANO(3,2,C)PYRAZOLE AND CHOLESTANO(3,2,C)PYRAZOLE BY
THE REACTION OF 2,HYDROXYMETHYLENE,3,OXO STEROIDS WITH HYDRAZINE HYDRATE
IN MECH IS DESCRIBED. A TWO STEP MECHANISM WAS OBSO. WHICH DID NOT
DEPEND ON THE C-17 SUBSTITUENT OF THE STEROID. FIRST THE
2,HYDROXYMETHYLENE,OXO STEROID 3,HYDRAZONE FORMS AND THEN IS DEHYDRATED
TO THE PYRAZOLE. FACILITY: KHARKOV. NAUCH.-ISSLED. INST.
ENDOKRINOL. KHM. GORMONOV, KHARKOV, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE—SYNTHESIS OF TRIPHENYLETHYLENE DERIVATIVES. 7, 2, HALO SUBSTITUTED
ESTERS OF 1,2,BIS,O,HYDROXYPHENYL,1,P,HYDROXYPHENYL,ETHYLENE -U-
AUTHOR-(102)—VOLLOVSKIY, L.N., KHUKHRYANSKIY, V.G.

COUNTRY OF INFO--USSR

SOURCE—UKR. KHIM. ZH. 1970, 36(2), 196-8

DATE PUBLISHED——70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—BENZENE DERIVATIVE, ETHYLENE, POLYNUCLEAR HYDROCARBON, CANCER
DRUG, CHLORINATED ORGANIC COMPOUND, BROMINATED ORGANIC COMPOUND, ORGANIC
SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME--2000/1575

STEP NO--UR/0073/70/036/002/0196/0198

CIRC ACCESSION NO—AP0125201

UNCLASSIFIED

2/2 010
CIRC ACCESSION NO--AP0125201

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IA HEATED AT 200-10DEGREES WITH KOH IN MEOH 20 HR IS HYDROLYZED TO IB, M. 171-20DEGREES (C SUB6 H SUB6). ACYLATION OF IB TO IC, FOLLOWED BY CHLORINATION OR BROMINATION IN HOAC FORMED THE FOLLOWING II, WHICH ARE POTENTIALLY VALUABLE IN TREATMENT OF PROSTATE CANCER (ACYL GROUP AND M.P. OF IC, II (X EQUALS CL) AND II (X EQUALS BR) GIVEN): SHOWN ON MICROFICHE.
INST. ENDOKRINOL. KHM. GORMON., KHARKOV, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CHANGE IN THE COMPOSITION OF THE METAL AND SLAG DURING THE OXYGEN
BLOWING OF PIG IRON WITH VARIOUS SILICON AND MANGANESE CONTENTS -U-
AUTHOR--(03)-ZARVIN, E.YA., NIKOLAYEV, A.L., VOLOVICH, M.I.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V.U.Z., CHERNAYA MET., 1970, (2), 47-52

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PIG IRON, SLAG, SILICON CONTAINING ALLOY, MANGANESE CONTAINING
ALLOY, BIBLIOGRAPHY, PHOSPHORUS, DESULFURIZATION, METAL OXYGEN
CONVERSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0559 STEP NO--UR/0148/70/000/002/0047/0052

CIRC ACCESSION NO--APO124254

UNCLASSIFIED

2/2 015
CIRC ACCESSION NO--AP0124254

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONVERSION OF PIG IRON CONTG. VARIOUS PROPORTIONS OF SI AND MN IN A 30-60 TON O CONVERTER AND THE KINETICS OF SLAG FORMATION WERE STUDIED WITH SPECIAL REF. TO CHANGES TAKING PLACE IN THE COMPOSITION OF THE METAL AND THE SLAG DURING VARIOUS STAGES OF THE PROCESS AND THEIR RELATION TO TEMP. AND BLOWING CONDITIONS. THUS THE DEGREE OF P AND S REMOVAL WAS VERY SENSITIVE TO THE COMPOSITION OF THE PIG IRON, PARTICULARLY ITS MN AND SI CONTENT. IN PRINCIPLE PIG IRON CONTG. ONLY A SMALL QUANTITY OF MN MAY BE USED SUCCESSFULLY IN THE CONVERSION PROCESS.

UNCLASSIFIED

USSR

UDC 8.74

VOLOVICH, V. M.

"Processing Large Amounts of Information on a Computer in the Problems of Linear Algebra"

V sb. Vychisl. metody lineyn. algebry (Computation Methods of Linear Algebra — collection of works), Novosibirsk, 1972, pp 114-118 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V605)

No abstract

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--CONDUCTOMETRIC STUDY OF THE REACTION OF ANTIMONY PENTACHLORIDE ON
SUBSTITUTED CHALCUNES IN BENZENE SOLUTIONS -U-
AUTHOF-(03)-TOLMACHEV, V.N., VOLOVIK, A.M., LAVRUSHIN, V.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHM. 1970, 40(2), 275-8

DATE PUBLISHED----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL EFFECT, ELECTRIC CONDUCTIVITY, ORGANIC SOLVENT,
BENZENE, ANTIMONY CHLORIDE, CHLORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0201 STEP NO--UR/0079/70/040/002/0275/0278

CIRC ACCESSION NO--APO113140

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113140

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COND. DATA ARE PRESENTED FOR 25, 35, AND 45DEGREES OF SYSTEMS OF SBCL SUB5 AND CHALCONES WITH ME, ME, PH, H, CL, AND NO SUB2 SURSTITUENTS IN VARIOUS POSITIONS RELATIVE TO THE CU GROUP. THE 1:1 AND 2:1 COMPLEXES ARE FORMED IN THESE BINARY SYSTEMS OF SBCL SUB5 CHALCOME. THE CONDS. OF THESE INCREASE WITH INCREASING TEMP. AND WITH INCREASING ELECTRON DONOR ABILITY OF THE SUBSTITUENTS IN ORDER: H, PH, ME, MEO. THE MOLAR COND. DATA CAN BE CORRELATED WITH THE TAFT POLAR SUBSTITUENT CONSTANTS.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CALCULATION OF THE CRITICAL CURRENT FOR PARTICLES DECAYING INTO
NONPARALLEL EXCITATIONS -U-
AUTHOR--VOLOVIK, G.YE.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 6, PP 2054-2063
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE PHYSICS, LOW TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2225

STEP NO--UR/0056/70/058/006/2054/2063

CIRC ACCESSION NO--AP0125803

UNCLASSIFIED

2/2 015
CIRC ACCESSION NO--AP0125803 UNCLASSIFIED PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CURRENT OF FOREIGN PARTICLES
INTERACTING WITH A BOSE SYSTEM AT ABSOLUTE ZERO IS CALCULATED IN THE
CASE WHEN THE MAIN DISSIPATION MECHANISM IS DECAY INTO TWO NONPARALLEL
EXCITATIONS. IT IS SHOWN THAT FOR SMALL FIELD STRENGTHS THE CURRENT
POSSESSES A SINGULARITY OF THE MAGNITUDE OF IN 3 PRIME [NEGATIVE] TYPE
AND WITH INCREASE OF THE FIELD STRENGTH IT MAY EITHER INCREASE OR
DECREASE. FACILITY: INSTITUT TEORETICHESKUY FIZIKI IM. L. D.
LANDAU AN SSSR.

UNCLASSIFIED

Acoustical and Ultrasonic

USSR

UDC 534.874.3

VOLOVOV, V. I., LYSANOV, Yu. P., and SECHKIN, V. A., Acoustic
Institute of the Academy of Sciences USSR, Moscow

"On Spatial Correlation of Acoustic Signals Reflected From the
Sea Bottom"

Moscow, Akusticheskiy Zhurnal, Vol 19, No 1, Jan-Feb 73,
pp 16-20

Abstract: Experimental data are presented on the correlation of envelopes of acoustic signals reflected from the sea bottom and admitted on horizontally dispersed receivers. The experiments were carried out on abyssal plains in Atlantic and Indian Oceans at normal sound incidence on the sea bottom. It is demonstrated that by high frequency a correlation of enveloping signals is absent, whereas by low frequency it appears to be very high. The obtained results are explained by reference to diagrams. Three types of fluctuations of acoustic signals reflected from the sea bottom are distinguished which are determined by different mechanisms and characterized by highly contrasting spatial periods. Four figures, seven bibliographic references.

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USSR

BASKAKOV, Yu. A., VOLOVNIK, L. L., VASIL'EV, A. F., ARYUTKINA, N. L.,
TIBANOV, P. V., and NEGREBETSKIY, V. V.

"Herbicidal Derivatives of Hydroxylamine, XXIV. The Reaction of Halides
of Haloacetic Acids with Hydroxylamine Derivatives of Thiourea"

Khimiya Geterotsikl. Soyedin. [Chemistry of the Heterocyclic Compounds --
Collection of Works], No 3, Riga, Zinatne Press, 1971, pp 104-107. (Trans-
lated from Referativnyy Zhurnal Khimiya, No 5, Moscow, 1972, Abstract No
5N676 by the authors)

Translation: The reaction of ClCH_2COCl with N-methylthiocarbamoyl-0-methyl-
hydroxylamine (I) without any HCl acceptor produces 2-methoxyimino-3-methyl-
4-oxo-1, 3-thiazolidinium (II), which is converted by heating in MeOH to 2-
methoxyimino-3-methyl-1, 3-thiazolidin-4-one (III). Two point two (2.2) g
 ClCH_2COCl is added to a solution of 2.4 g I in 100 ml ether at -20° , mixed
for 2 hours (after which the temperature of the mixture is about 20°) and
3.6 g II are separated, yield 94 %, mp 160° (in a sealed capillary). A
solution of II in MeOH is heated 1-2 hr on a water bath, the MeOH is dis-
tilled under vacuum, producing III, yield about 100 %, mp 88°. For a
previous report see RZhKhim, 1969, 4B1038.

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USSR

UDC 616.71+616.314]-008.9-02:612.232.4

VOLOZHIN, A. I. and LEMETSKAYA, T. I., Moscow Institute of Medical Stomatology

"Changes in Calcium and Protein Metabolism in Bones and Teeth After Exposure to Hypercapnia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1973,
pp 42-43

Abstract: Rats were exposed to gradually increasing concentrations of CO₂ (3 to 5%) for 30 days when they were injected with Ca⁴⁵ and glycine-2-C¹⁴. Hypercapnia had no effect on the calcium, inorganic phosphorus, and total protein levels of the blood. However, it increased the rate of Ca⁴⁵ resorption from the animals' bones (except the jaw) and teeth. The incorporation of glycine-2-C¹⁴ into acid-soluble proteins of the Femur decreased to 88% of the control. Histological examination revealed slow reconstruction of bone and marked dilatation and hyperemia of the blood vessels. The blood vessels of the dental pulp were also dilated.

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USSR

UDC 612.751+612.311/.015.3-06:/612.223.11+612.273.2

VOLOZHIN, A. I., VASIL'YEV, P. V., and MALKIN, V. B., Chair of Pathological Physiology, Moscow Medical Institute of Stomatology, Moscow

"The Effects of a Gaseous Medium With a Deficiency of Oxygen and an Excess of Carbon Dioxide on Calcium and Protein Metabolism in the Bones and Teeth"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May-Jun 73, pp 20-24

Abstract: Rats were kept for 20 or 30 days under conditions of fractional (6 hrs per day), gradually increasing hypoxia (405 mm Hg on stepwise reduction from 525 mm Hg within 5 days), while the CO₂ concentration in the air which they inhaled was gradually increased from 3 to 5%. This led to a reduction of the rate of loss of ⁴⁵Ca from bone tissue and an increase of incorporation of ⁴⁵Ca into this tissue. The rate of incorporation of ²¹⁴C-glycine into the total proteins of the bones and teeth was increased. The increase in synthetic processes in the bone tissue was presumably associated with a reduction of the regional circulation affecting this tissue, which is insensitive to hypoxia, while the circulation supplying O₂ to hypoxia-sensitive tissues was increased. Artificial gas media deficient in O₂, but containing an excess of CO₂, can presumably be used to prevent demineralization of bones of the skeleton as a 1/2

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VOLOZHIN, A. I., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 73, pp 20-24.

result of the enforced reduction of motor activity and weightlessness under conditions of prolonged space travel.

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VOLOZHIN, A. I.

50:7445 54435
9 Nov. 71

DOC: 612 766 6

THE EFFECT OF AN ALTERED GAS ENVIRONMENT ON

Article by D. N. Packard, V. C. Alf, and J. L. Moulton. *Experiments on Animals*, Vol. 33, No. 1, March 1960, pp. 78-81.

In the course of investigating the effect on the organism of prolonged hypokinesia the conception of a hypoactive syndrome was formed which is characterized by specific functional disturbances which are formed which is adaptive capabilities (A.S. Rotovskaya et al., 1964; L.V. Kudrinskaya et al., 1968; L.I. Kudrinskaya, 1968).

THE JOURNAL OF CLIMATE

hypnotic training, and our authors called serious attention to the "ineffectiveness of using 'hypnotic' hypnosis" (1961). Their studies established that optimum effectiveness of step-by-step elevation to a plateau of 25-28 hours and depending on increasing altitudes, staying there 30 minutes, one hypnotic is most effective.

The purpose of the present work was to investigate the possibility of using various gas environments as hypodermic syringes.

Method. The investigations were conducted in four series of experiments on 1000 mongrel albino male rats, weighing 110 to 200 grams. The distribution in groups and experimental conditions are shown in Table I.

USSR

UDC 612.751.1+612.311.1]015.31:[546.41+546.18]-05:612.273.2

VOLOZHTY, A. I., and LEMETSKAYA, T. I., Chair of Pathological Physiology, Moscow
Medical Stomatology Institute

"Shifts in Calcium and Phosphorus Metabolism in the Bones and Teeth During Oxygen Deficiency"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 5,
Sep/Oct 70, pp 16-20

Abstract: The effect of hypoxia on the accumulation of Ca^{45} and P^{32} osteotropic isotopes in bones and teeth was studied using allimo rats. When the rats were kept at simulated high altitudes (4 and 5 km) for 48 hrs., incorporation of the above isotopes was reduced, whereas blood accumulation in the capillaries of the bone growth zone and of the pulp of molars and incisors increased considerably. At a simulated altitude of 7 km, both Ca^{45} and P^{32} accumulated to a greater extent in teeth and bones, whereas blood accumulation in these calcified tissues was considerably reduced. The degree of morphological change was proportional to the depression of calcium and phosphorus metabolism. It was concluded that hypoxic hypoxia leads to two-phase shifts in the mineral metabolism in calcified tissues. The first phase of the breakdown of this metabolism emerged when the rats were repeatedly "elevated" to 3, 5, and 6 km. It is possible that this shift is

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VOLOZHIN, A. I., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya,
Vol 14, No 5, Sep/Oct 70, pp 16-20

accompanied by a compensating increase in blood accumulation in the tissues. In
the second phase a reversal of this effect took place when the rats were brought
to an altitude of 7 km.

2/2

Acc. Nr:

AP0040325

V
Ref. Code: UR 0487

PRIMARY SOURCE:

Eksperimental'naya Khirurgiya i Anesteziologiya,
1970, Nr 1, pp 45-48

METHODS OF AUTORADIOGRAPHY OF THE BONE TISSUE
V. A. Minasyan, A. I. Volozhin

The authors propose an universal technique of autoradiography of the bone tissue which makes it possible to investigate calcium metabolism in the jaws and teeth. The study of mineral metabolism of the bone tissue was conducted with the aid of Ca^{45} isotope on 10 dogs at the age of 1—1.5 years. The article presents data of canine maxillary bones which are the most structurally complicated calcified tissues. The proposed technique could be successfully employed for studying calcium metabolism also in other skeleton bones.

REEL/FRAME
19741756

02dc

USSR

UDC 612.75+612.311.17.015.31:546.41-06:612.766.2

VOLOZHIN, A. I., Problem Laboratory, Chair of Orthopedic Stomatology, and
Chair of Pathological Physiology, Moscow Medical Stomatological Institute

"Experimental Study of Calcium Metabolism in Bones and Teeth During Restricted
Motor Activity"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 6,
Nov/Dec 71, pp 65-69

Abstract: In young rats whose motor activity is severely restricted for 20 to 30 days, but which have easy access to unlimited quantities of food and water, growth of the bones of posterior extremities and salt concentration in these bones diminish. Radioactive Ca⁴⁵, administered 10 days prior to motor restriction, is lost from the femur and tibia at a rate 10-20% higher than in controls. At the same time, the concentration of the isotope in the maxilla and teeth increases as a result of a redistribution of calcium in the body. When radioactive calcium is administered during motor restriction, its incorporation into bones increases on the 20th day and decreases on the 30th day of hypodynamia.

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USSR

UDC 620.17-41

MIKLYAYEV, P. G. and VOLOZNEVA, L. YA.

"A Method of Evaluating the Plastic Anisotropy of Sheet Materials"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 9, 1973, pp 1119-1122

Abstract: In this article the authors show the existence of a functional dependence of normal plastic anisotropy on the degree of deformation under tension ϵ . In connection with this they suggest evaluating the normal anisotropy for several levels of ϵ .

For a more accurate and complete evaluation of the anisotropy of sheet materials the authors recommend using the dependence of the coefficient of normal anisotropy R on the direction in the plane of the sheet.

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USSR

MIKLYAYEV, P. G., and VOLOZNEVA, L. YA., Zavodskaya Laboratoriya, Vol 39,
No 9, 1973, pp 1119-1122

The authors have compiled a table to compare the coefficient of anisotropy of the mechanical properties of rolled sheets of aluminum alloys and titanium alloys. Figure 1 illustrates the dependence of the coefficient of normal anisotropy on the direction of selecting samples of rolled sheets from two alloys. Figure 2 gives the dependence of the mean value and anisotropy of the coefficient $R(A_R)$ on the degree of deformation under tension.

The article contains 1 table, 2 illustrations, and 2 bibliographic references.

2/2

- 68 -

1/2 032

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--ON ESTIMATING THE ANISOTROPY OF THE MECHANICAL PROPERTIES OF
METALS, ALLOWING FOR THE EFFECT OF THE STRESSED STATE -U-

AUTHOR-(021)-MIKLYAYEV, P.G., VOLOZNEVA, L.YA.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (1), 84-87

DATE PUBLISHED--70

SUBJECT AREAS--METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--ALUMINUM ALLOY, MECHANICAL PROPERTY, TEST METHOD, ANISOTROPY,
STRESS ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0240

CIRC ACCESSION NO--AP0124002

UNCLASSIFIED

STEP NO--UR/0032/70/036/001/0084/0087

2/2 032

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APO124002

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE STRESSED STATE OF THE METAL SAMPLES, USED IN MECHANICAL TESTING, ON THE RESULTS OF THE TESTS IS DISCUSSED; A TYPICAL PRACTICAL EXAMPLE (EXTRUDED AL ALLOY PARTS) IS CONSIDERED. THE ANISOTROPY OF THE MECHANICAL PROPERTIES (UTS, YS) OF SUCH PARTS DEPENDS VERY LARGELY ON THE SEVERENESS OF THE INTERNAL STRESSES EXISTING IN THE SAMPLE MATERIAL WHEN TESTING. THIS FACTOR MUST BE ALLOWED FOR WHEN SELECTING THE OPTIMUM NUMBER OF TEST SAMPLES AND THE TEST DIRECTIONS IN EACH.

UNCLASSIFIED

Aluminum and Its Alloys

USSR

UDC 620.17:669.71

VOLCHENOV, V. I. and MIKLYAEV, P. G.

"Nature of the Anisotropy of the Strength Characteristics of Aluminum Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1970, pp 37-41

Abstract: An investigation was made of the nature of the anisotropy of the strength characteristics of the D16 aluminum alloy. The chemical composition of the alloy is as follows: 4.3% Cu, 1.45% Mg, 0.74% Mn, 0.35% Fe, 0.22% Si, and 0.1% Zn. Molded strips 42 x 250 mm in cross section were investigated. It was found that the anisotropy of the mechanical properties depends on the structural state and type of work-hardening. The anisotropy of the yield point was determined mainly by the presence of a predominate orientation of the crystals in the worked intermediate products (primary anisotropy) and oriented isolation of the Guinier-Preston zones during the process of natural aging of textured material (secondary anisotropy). The anisotropy of the ultimate strength and true resistance to fracture arises basically from the mechanical texture. The possibility is shown of regulating the degree of anisotropy of the yield point by varying the preferential orientations of the material and selecting the corresponding combination of them to ensure the required amount of anisotropy.

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1/2 024

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--PRODUCTION OF ALLOYS WITH A UNIDIRECTIONAL STRUCTURE BY MULTIPLE
PASS ZONE RECRYSTALLIZATION --U--
AUTHOR-[03]-VOLPAN, A.YE., MARYCHEV, V.V., SHIROBOKOVA, T.G.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, MAR. 1970, 29, (3), 661-663

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CRYSTALLIZATION, ALUMINUM ALLOY, COPPER ALLOY, MAGNESIUM
ALLOY, ZINC ALLOY, EUTECTIC MIXTURE, CRYSTAL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0204

STEP NO--UR/0126/70/029/003/0661/0663

CIRC ACCESSION NO--AP0129460

UNCLASSIFIED

2/2 024
CIRC ACCESSION NO--AP0129460

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY OF PRODUCING ALLOYS WITH UNIDIRECTIONAL STRUCTURE (CONTROLLED EUTECTICS) BY MULTIPLE PASS ZONE RECRYSTALLIZATION IS CONSIDERED IN THE LIGHT OF EXPERIMENTAL TESTS WITH AL,CU AND MG,ZN,AL ALLOYS. BOTH PRIMARY CRYSTALS AND THE EUTECTIC TEND TO BECOME ORIENTED ALONG THE DIRECTION OF MOTION OF THE ZONE. A CERTAIN AMOUNT OF DISORDER SETS IN AT THE ENDS OF THE BARS THUS TREATED; OCCASIONAL DENDRITIC MICRO INHOMOGENEITIES CAN EASILY BE ELIMINATED.

UNCLASSIFIED

USSR

UDC 612.766.1:656.13.071.7

VAYSMAN, A. I., LASECHENKO, N. S., IKSANOV, M. SH., DOROFEEVA, Ye. D.,
ROSTOVITSEVA, G. G., GOLOVA, I. A., CHANDAYEV, A. K., VOL'PER, G. I., and
E. I. KOGAN

"Physiological Characteristics of the Work of Bus and Truck Drivers in a Large City"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1973, pp 13-16

Abstract: The results of various functional psychological and physiological tests (reflexes, reaction to a moving object, proof reading test, EKG, blood pressure, pulse, etc.) confirmed the conclusions drawn from questionnaires filled out by 8000 bus drivers that fatigue gradually sets in after 4 to 5 hours on the job and becomes pronounced after 7 to 8 hours of driving. Along with a deterioration in performance, many showed an "improvement" in some physiological indices at the end of the work shift (e.g., increase in number of correct reactions to a moving object, decrease in time of differential reactions). This "improvement" is regarded as the result of overstraining the compensatory mechanisms in order to preserve a level of activity sufficient to protect the life and health of the driver. The truck drivers, on the other hand, continued to function well even after 8 or 9 hours on the job because

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USSR

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VAYSMAN, A. I., et al., Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1973, pp 13-16

of the less strenuous nature of the work (less time spent in driving during the shift, fewer actions to control the vehicle per unit of time, and less emotional stress). Some suggestions are made for altering the work schedules of bus drivers to take into account the physiological factors uncovered in the study.

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USSR

UDC 517.511

VOL'PERT, A. Ya."Axiomatic Determination of Hyperbolic Functions"

Uch. zap. Kazansk. in-t (Scientific Proceedings of the Kazan Institute), 1969,
129, No 3, pp 65-75 (from RZh-Matematika, No 3, Mar 1970, Abstract No 3B10)

Translation: It is shown that the functions $f(x)$ and $\phi(x)$ which are determined on all axes by the relationships:

1) $f(x-y) = f(x)f(y) - \phi(x)\phi(y)$; 2) $f(0)=1$; 3) $f(x) > 0$, $\phi(x) > 0$, $x \notin (0, \infty)$, have the fundamental properties of the functions $\cosh \lambda x$ and $\sinh \lambda x$, $\lambda > 0$, and that these functions are unique functions satisfying these conditions.

E. Riekstyn'sh

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28

1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--CERTAIN PROBLEMS CONCERNING THE STRESS CONCENTRATION AROUND AN
ELLIPSOIDAL CAVITY IN A TRANSVERSELY ISOTROPIC BODY -U-
AUTHOR--(02)-ALEKSANDROV, A.YA., VOLPERT, V.S.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA, JAN.-FEB.
1970, P. 115-121
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--STRESS CONCENTRATION, STRESS ANALYSIS, ELASTICITY THEORY,
AXISYMMETRIC BODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0244

STEP NO--UR/0484/70/000/000/0115/0121

CIRC ACCESSION NO--AP0102294

UNCLASSIFIED

2/2 030
CIRC ACCESSION NO--AP0102294

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE STRESS CONCENTRATION IN THE VICINITY OF AN ELLIPSOIDAL CAVITY IN A TRANSVERSELY ISOTROPIC BODY, USING SOLUTIONS TO PROBLEMS OF ELASTICITY THEORY FOR A TRANSVERSELY ISOTROPIC ELLIPSOID OF REVOLUTION. A NUMBER OF AXISYMMETRIC PROBLEMS CONCERNING THE STRESS CONCENTRATION AROUND AN ELLIPSOIDAL CAVITY ARE CONSIDERED, INCLUDING THE PROBLEM OF THE EFFECT OF AN ELLIPSOIDAL CAVITY ON A PURE BENDING FIELD AND THE PROBLEM OF THE STRESSED STATE IN THE VICINITY OF A CAVITY IN A TRANSVERSELY ISOTROPIC BODY UNDER CONDITIONS OF UNIAXIAL TENSION AT INFINITY PERPENDICULAR TO THE AXIS OF ROTATION.

UNCLASSIFIED

USSR

UDC: 621.317.799:621.396.62

VOL'PIN, A. G., Leningrad Electrical Engineering Institute of Communications imeni
M. A. Sechen-Savchenko

"A Device for Automatic Detection of Faults in Radio Electronic Equipment"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28,
1970, Soviet Patent No 280581, Class 21, filed 1 Aug 68, p 49.

Abstract: This Author's Certificate introduces a device for automatic detection of faults in radio electronic equipment based on Patent No 169569. As a distinguishing feature of the patent, a remote signal is provided on the number of the faulty element in the equipment. The installation uses a second group of ring-type step-by-step pulse distributors interconnected in series by ranks and loaded by an auxiliary indicator. The input of the first distributor is connected to the output of a cadence pulse generator through a module which forms cadence and correcting pulses. The second input of this module is connected to the output of the pulse distributor. A slave cadence pulse generator is connected to the input of the first ring-type step-by-step distributor of the second group.

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CATALYTIC FIXATION OF NITROGEN -U-

AUTHOR-(03)-VOLPIN, M.YE., ILATOVSKAYA, M.A., SHUR, V.B.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(2), 333-41

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROGEN, AMMONIA, TITANIUM CHLORIDE, ALUMINUM BROMIDE,
CHEMICAL SYNTHESIS, CHEMICAL REACTION MECHANISM, CHEMICAL REDUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0091

STEP NO--UR/0195/70/011/002/0333/0341

CIRC ACCESSION NO--AP0132384

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC. ACCESSION NO--AP0132384

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. N IS CATALYTICALLY REDUCED TO NH SUB3 IN THE PRESENCE OF TiCL SUB4, AL, AND ALBR SUB3. BEST YIELD (10.7 MOLE NH SUB3 -1 MOLE TiCL SUB4) WAS OBTAINED AT 1:12:33 MOLE RATIO OF CATALYST MIXT. C SUB6 H SUS6 IS THE BEST SOLVENT FOR THIS REACTION BUT THE REACTION CAN TAKE PLACE WITH COMPARATIVELY SIMILAR YIELD OF NH SUB3 IN THE ABSENCE OF A SOLVENT, IN FUSED ALBR SUB3. AT 130DEGREES AND 100 ATM. N, 125 MOLES NH SUB3 WERE OBTAINED WITHIN 14-18 HR AT 1:300:1500 MOLE RATIO OF TiCL SUB4 -LiAlH SUB4 -ALBR SUB3. FOR CATALYTIC FIXATION OF N, ALBR SUB3 WHICH PARTICIPATES IN THE BREAKING OF Ti-N BOND IS AS INDISPENSABLE AS TiCL SUB4 AND A REDUCING AGENT. INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

Reaction Kinetics

USSR

UDC: 541.124-128

VOL'PIN, M.YE., ILATOVSKAYA, M.A., and SHUR, V.B., Institute of Organo Elemental Compounds, Moscow, Academy of Sciences USSR

"Catalytic Fixation of Nitrogen"

Moscow, Kinetika i Kataliz, Vol 11, No 2, Mar-Apr 70, pp 333-341

Abstract: Compounds of transitional metals react with N₂, forming compounds of the nitride type that yield NH₃ on hydrolysis. While the transitional metal compounds are effective in activating N₂, fixation of N₂ by them is not a catalytic process, because regeneration of the compound bringing about the fixation of N₂ does not take place by reason of the strong bond formed between N and the metal. Regeneration does take place when a reducing agent and an aprotic acid are present. Thus, catalytic fixation of N₂ could be carried out by employing the system TiCl₄ + Al + AlBr₃ in the presence of benzene; by using this mixture, the yield of NH₃ could be increased to 200-300 moles per mole TiCl₄ upon increasing continuously the content of AlBr₃ in the mixture at a constant amount of TiCl₄ and Al. The reaction could also be carried out in the absence of benzene in molten AlBr₃. Chlorides of transitional metals other than Ti (ZrCl₄, CrCl₃, MoCl₅, WCl₃, FeCl₃, etc) were ineffective as catalysts of N₂ fixation in a reaction of this type. Other systems that brought about catalytic fixation of N₂ were Al:AlBr₃:C₆H₆.TiCl₂.2AlCl₃, TiCl₄:LiAlH₄:AlBr₃, and Ti(OBu)₄ + iso-Bu₃Al + AlBr₃ in the presence of H₂/

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Acc. Nr:

AP0101481Abstracting Service:
CHEMICAL ABST. 6-70Ref. Code:
4R 0079

121661m Activation of mercury by nucleophilic reagents. Direct synthesis of organomercury compounds from mercury and alkyl(aryl)halides. Vol'pin, M. E.; Tevdoradze, E. A.; Butin, K. P. (USSR). ZH. OSMOLOVYKH. Khim. 1970, 40(2), 315-18 (Russ.). Anions such as I^- , CNS^- , $S_2O_3^{2-}$, and Br^- activate Hg in reaction with alkyl or aryl halides and a synthesis of organomercury compds. was developed on this basis. Shaking 3.08 g BuI and 20.1 g Hg in dry EtOH 8 hr gave 4% BuHgI, m. 115-17°. PhCH₂Cl, Hg, and NaI in EtOH 8 hr gave (PhCH₂)₂Hg, 55% PhCH₂HgCl, m. 102-4°, and PhCH₂HgI, sepd. by extn. with CHCl₃. *p*-O₂NC₆H₄CH₂Br and Hg with NaI in EtOH 60 hr gave *p*-O₂NC₆H₄CH₂HgBr and the corresponding iodide. Shaking 2.04 g PhI, 20.1 g Hg, 3.72 g NaI, and 60 ml dry EtOH gave 6% PhHgI. The following yields of organomercury compds. were formed in the reaction of BuI with Hg in EtOH with the indicated activators: NaCl 0, NaBr 1.5, NaI 4, KCNS 8, Na₂S₂O₃ 10; and Na₂S 2.5%; in diglyme with NaI the yield was 11% and in (MeOCH₂)₂ it was 8.6%. G. M. Kosolapoff

CK

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REEL/FRAME
19851387

USSR

UDC 548.55

GNILOV, S. N., NASHEL'SKIY, A. YA., and VOL'PYAN, A. V., State Scientific Research and Planning Institute of Rare Metals

"Programming the Rate of Growing Alloyed Single Crystals With a Constant Degree of Equilization"

Moscow, Neorganicheskiye Materialy, Vol 7, No 8, Aug 71, pp 1297-1300

Abstract: To obtain alloyed single crystals of semiconductor materials it is necessary to solve the problem of growing crystals alloyed simultaneously with two impurities, ordinarily the donors and acceptors, in order to produce a constant charge carrier concentration along the length of the crystal. This concentration ratio is

$$a = \bar{C}_d(g)/\bar{C}_a(g),$$

where $\bar{C}_g(g)$ and $\bar{C}_a(g)$ are the concentrations of non-volatile donor and acceptor impurities in the crystal and g is the fraction of crystallized volume carrying the name of the degree of compensation. The problem can be solved by programming the change in crystal growth rate. This article deals 1/2

USSR

GNILOV, S. N., et al., Neorganicheskiye Materialy, Vol 7, No 8, Aug 71,
pp 1297-1300

with the development of a method for programming the change in crystal growth rate by taking into account coefficients of distribution of phosphorus and gallium in germanium, calculating the maximum growth rate f , and then setting up the identities and equations which produce values which can then be analyzed and evaluated. Three figures, 1 table, 2 bibliographic references.

2/2

- 60 -

USSR

UDC 546.55

ZOL'YAN, A. YE., GNILOV, S. V., RASHEL'SKIY, A. YA., State Scientific Research and Planning Institute of Rare Metals

"Design of a Program for Growing Single Crystals by the Method of Zonal Equalization With a Uniform Impurity Distribution Along the Length"

Moscow, Neorganicheskiye Materialy, Vol 7, No 8, Aug 71, pp 1301-1304

Abstract: Growing of alloyed single crystals by the method of zonal equalization is widely used for producing many semiconductors. The essence of the method is that an ingot of pure material has a calculated quantity of impurity added to it as the ingot makes its one and only melting pass. This report describes a simple and convenient method of programming the rate of propagation in the process of zonal equalization. The authors present examples of vaporization of alloying impurities and alloying from the gas phase and give examples of programs for growing crystals of germanium alloyed with phosphorus and antimony. In the examined cases, transition from zonal equalization with vaporization of an impurity to zonal equalization with a constant total amount of impurity in the ingot, and, further, to the nonal process of using an alloying mixture (impurity) from the gas phase lowers effectiveness of equalization for programmed change of the rate of movement of the melted zone. Four figures, 6 bibliographic references.

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USSR

UDC 669.783

GILLOV, S. V., NASHEL'SKIY, A. Ya., and VOL'PYAN, A. Ye.

"Establishing a Program for Single Crystal Growth From a Melt"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 56-57

Abstract: The growing of single crystals with a uniform distribution of impurities and consequently, physical properties along the length, is one of the most important problems in the technology of pure substances and semiconductors. A procedure is suggested for establishing a program for the variation of the single-crystal growth-process parameters by the Bridgeman and Chikhral'skiy methods. A differential equation for the distribution coefficient variation in the process of single crystal growth is derived, from which the program equation is constructed. The determination of the program for germanium single-crystal growth rate variation with a uniform distribution of phosphorus admixtures along its length is considered as an example, and the results are presented in graphs.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DISTRIBUTION OF IMPURITIES DURING THE ZONE CRYSTALLIZATION OF
LIQUIDS -U-
AUTHOR--(02)--VOLPYAN, A.YE., KURDYUMOV, G.M.



COUNTRY OF INFO--USSR

SOURCE--TEOR. OSN. KHIM. TEKHNOL. 1970. 4(2), 281-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CRYSTAL IMPURITY, ZONE REFINING, CRYSTALLIZATION, CHEMICAL
PURIFICATION, DIOXANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0396

STEP NO--UR/0455/70/004/002/0281/0285

CIRC ACCESSION NO--AP0111589

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0111589

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THEORY OF ZONE CRYSTN. OF LIQS. AS A PROCESS OF PURIFICATION WAS DEVELOPED MATH. ON THE BASIS OF PFANN (1964) CONDITIONS. THE THEORY WAS APPLIED TO THE PURIFICATION OF DIOXANE CONTG. BETA,NAPHTHALENESULFONYL CHLORIDE, 9 TIMES 10 PRIME NEGATIVE4 MOLE-L., AS AN IMPURITY. THE AMPUL RAISED AT 3 CM-HR WAS COOLED TO NEGATIVE 10 AND HEATED TO 35DEGREES. THE EFFECTIVENESS OF PURIFICATION IN A 2 ZONE PROCESS WAS HIGHER THAN IN A SINGLE ZONE PROCESS AND IT WAS HIGHER IN THE CRYSTN. OF LIQS. THAN IN THE CRYSTN. OF SOLIDS. THE DIFFERENCES DECREASED AS THE NO. OF ZONES INCREASED.

FACILITY: MOSK. INST. TONKOI KHM. TEKHNOL. IM. LOMONOSOVA, MOSCOW,
USSR.

UNCLASSIFIED

USSR

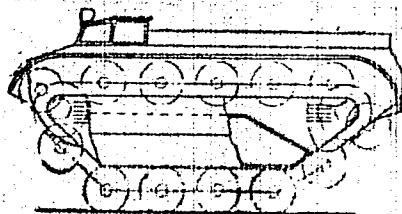
UDC: 621.1.011/.012

VOL'SKIY, S. G., TERNOVSKIY, B. I., GERASIMOV, N. I.

"An Amphibian Body"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 331941, Division B, filed 13 Jan 69, published 14 Mar 72, p 52

Translation: This Author's Certificate introduces an amphibian body with races for a pneumoroller traction unit. As a distinguishing feature of the patent, the dirt track thrown up by the rollers is improved by beveling the side and rear (stern) surfaces of the races.



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1/2 - 015 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--OPENING THE AZEPINE RING IN 2,3,4,5, TETRAHYDRO, 1H, AZEPINO(3,4-
B)INDOLE DURING ALKYLATION BY ALCOHOL IN THE PRESENCE OF RANEY NICKEL
AUTHOR--GLUSHKOV, R.G., VOLSKOVA, V.A., KOSTYUCHENKO, N.P., SHEYNKER,
YU.N., MAGIDSON, O.YU.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970; (2), 277-8

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--NICKEL, CATALYST ACTION, ALKYLATION, INDOLE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1805

STEP NO--UR/0409/70/000/002/0277/0273

CIRC ACCESSION NO--AP0100379

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100379

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE REDUCTION OF
1, METHOXY, 4, 5, DIHYDRO, 3H, AZEPINO(3, 4, B) INDOLE (I) WITH LiAlH₄-Et
SUB2 O GA VE 71PERCENT 2, 3, 4, 5, TETRAHYDRO, 1H, AZEPINO(3, 4, B) INDOLE (II),
M. 182-6DEGREES; HYDROCHLORIDE M. 280-20DEGREES. ATTEMPS TO ALKYLATE II
TO OBTAIN THE 2, ME DERIV. OF II WERE UNSUCCESSFUL. THE ALKYLATION OF I
WITH ETOH OVER RANEY NI YIELDED
2, METHYL, 3, (3, (DIETHYLAMINODIPROPYL) INDOLE, B'SUB2 165-7DEGREES.

UNCLASSIFIED

USSR

UDC 621.315.592

BLASHKU, A. I., VOLTAKS, B. I., BURDIYAN, I. I., DZHAFAROV, T. D., RZAYEV, M. A.

"Temperature and Concentration Dependencies of the Diffusion Coefficient of Zinc in Gallium Antimonide"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 467-472

Abstract: In order to exclude the concentration dependence of the diffusion coefficient in each separate sample and discover the migration mechanism of zinc in gallium antimonide, a study was made of diffusion by the isoconcentration diffusion method. The chemical diffusion of zinc in GaSb specimens alloyed with tellurium with different concentrations was also investigated.

Radioactive isotopes were used to investigate the chemical and isoconcentration diffusions of ^{65}Zn in n-type and p-type gallium antimonide alloyed with tellurium or zinc in the temperature range of 510-680° C. During chemical diffusion, the effective diffusion coefficient (D_{eff}) depends linearly on the concentration. As follows from experiments in electron transfer, zinc in gallium antimonide is shifted in the form of positive ions with an effective charge close to +1. A model is proposed for explaining the observed behavior of zinc in gallium antimonide.

During chemical diffusion, the values of D_{eff} are less than during
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USSR

BLASHKU, A. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972,
pp 467-472

isoconcentration diffusion, and with an increase in temperature, the difference in the values of D_{eff} decreases. It was proposed that the observed decrease in D_{eff} during chemical diffusion may be the result of the effect of braking internal electric fields occurring during diffusion of zinc in n-type gallium antimonide. The effect of the zinc vapor pressure on diffusion was also investigated. The diffusion mechanism is of a dissociative nature. The decrease in the effective diffusion coefficient in n-type GaSb heavily alloyed with tellurium can be connected with the effect of both electron-hole interaction and complex formation between the zinc and tellurium on diffusion [A. I. Blashku, et al., FTP, No 5, 755, 1971].

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Biochemistry

USSR

UDC 547.964.44577.17



SHVACHKIN, YU. P., VDOVINA, R. G., POZNYAK, M. G., VOLIYSKAYA, YE. N.,
RYABTSEV, M. N., KRIVTSOV, V. F., GRACHEVA, A. K., KRASNOCHERKOV, S. P.,
NOVOSELOV, V. A., GRUZDEV, V. S., OLEYNIK, A. M., KALINKINA, Z. B., FEDOTOV,
V. P., IVANOV, A. I., YUDAYEV, N. A.

"New Synthesis of Human Insulin"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 216-217

Abstract: Human insulin was synthesized on the basis of obtaining A and B chains by the solid phase method [R. B. Merrifield, J. Am. Chem. Soc., No 85, 2149, 1963; J. Stuart, et al., Tverdofazny sintez peptidov, Moscow, Mir, 1971] and subsequently combining the synthetic chains into the complete molecule of the biologically active hormone. Here, a new version of the synthesis is realized which permits exclusion of treatment of the chains with sodium in liquid ammonia which eliminates the danger of undesirable side reactions caused by this reagent [A. Marglin, et al., J. Am. Chem. Soc., No 88, 5051, 1966]. The A and B chains of human insulin were synthesized on an automated device using a spherical chloromethylated copolymer of styrene with 1% divinyl benzene as the insoluble carrier. All operations were performed in a nitrogen atmosphere. The derivatives of the L-amino acids used in the synthesis of the A and B chains are listed. The fluorohydrates of the chains were con-

• USSR

SHVACHKIN, YU. P., et al., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1,
1973, pp 216-217

verted into S-sulfonates which exhibited no differences from the S-sulfonates
of the corresponding natural chains of bull insulin. The synthetic A and B
chains were recombined both with the corresponding natural chains and among
each other. The resultant compounds had specific insulin activity of com-
parable magnitude to the previously synthesized insulin compounds
[K. Lubke, et al., Adv. Enzymol., No 33, 445, 1970].

2/2

USSR

UDC 577.4

VOL'VOVSKIY, L. A.

"Realization of Boolean Functions in a Homogeneous Lattice"

V sb. Aktual'n. vopr. tekhn. kibernetiki (Urgent Questions in Technical Cybernetics -- Collection of Works), Moscow, "Nauka," 1972, pp 194-199 (from RZh-Matematika, No 3, Mar 73, Abstract No 3V427 from author's abstract)

Translation: The article considers methods of synthesizing Boolean functions in one type of homogeneous lattice. Methods are based on the realization of parenthetical forms with the same and different orders of introducing variables in different parentheses.

1/1

USSR

VOL'VOVSKIY, L. A.

"Realization of Boolean Functions in a Homogeneous Structure"

Aktual'n. Vopr. Tekhn. Kibernetiki [Pressing Problems in Engineering Cybernetics -- Collection of Works], Moscow, Nauka Press, 1972, pp. 194-199 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V427 by the author).

Translation: Methods of synthesis of Boolean functions in one type of homogeneous structure are studied. The methods are based on the realization of parenthetical forms with identical or different sequence of input of variables into various parentheses.

1/1

USSR

VOL'VOVSKIY, L. A.

"Methods of Synthesis of Logic Functions in Homogeneous Media"

Abstraktn. i Struktur. Teoriya Releyn. Ustroistv. [Abstract and Structural Theory of Relay Devices -- Collection of Works], Moscow, Nauka Press, 1972, pp 103-112 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V614).

Translation: A review and classification of existing methods of synthesis of logic functions in homogeneous media.

1/1

- 42 -

USSR

UDC [621.357.035.4:621.79.027]:669.295.5(088.8)

KULESHOVA, T. V., and VOLYANSKAYA, Zh. V.

"Electrolyte for the Dimensional Electrochemical Treatment of Titanium Alloys"

USSR Author's Certificate No 324299, Filed 29 Dec 69, Published 7 Mar 72
(From Referativnyy Zhurnal -- Khimiya, No 21(II), 1972, Abstract No 21L287P
by A. D. Davydov)

Translation: An electrolyte composition is patented for the dimensional electrochemical treatment of Ti alloys containing (in %) 100 NaCl, 200 KNO₃, and 10 KBr. The electrolyte differs from other electrolytes by the presence of 50% NaNO₂, which improves the quality of treated surface at low DA.

1/1

- 48 -

Surgery

USSR

UDC 576.8:616-001.4-002

VOL'YANS'KIY, Yu. I., Chernovtsy Medical Institute, Chernovtsy

"The Microflora of Suppurative Wounds"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 5, Sep/Oct 71, pp 666-667

Abstract: The composition of the microflora in suppurative wounds of post-surgical patients was studied using 316 specimens from wounds. Staphylococci, E. coli, hemolytic Streptococci, Proteus vulgaris, and B. pyocyaneus were isolated from 51.2, 13.6, 10.7, 9.5, and 7.2 percent of the specimens, respectively. Bacterial associations (most frequently Staphylococci together with E. coli or Streptococci) were present in 37.8 percent of cases. Of the Staphylococci cultures isolated, 76 percent were pathogenic and 73 percent resistant to three or more of nine antibiotics used in the tests. Most of the Staphylococci strains belonged to the first and third phage groups. Patients with suppurative processes carried pathogenic Staphylococci in the throat and nasopharynx in 87 percent of cases; in 23 percent of cases, the identical Staphylococci strains, as indicated by the phage type and resistance to antibiotics, were present in the wounds. Because of the extensive resistance to antibiotics of the Staphylococci isolated, the effect on them of two drugs (etonium and decamethoxin) synthesized at the Chernovtsy Medical 1/2

USSR

VOL'YANS'KIY, Yu. L., Mikrobiologicheskiy Zhurnal, Vol 33, No 5, Sep/Oct 71,
pp 666-667.

Institute, was studied. The bactericidal concentration was 8-62.5 Mg/ml for Staphylococci and 0.25-4 micrograms/ml for etonium and decamethoxin, respectively.

2/2

-72-

USSR

UDC 616.993.1(477.84)

MAYEVSKIY, A. G., USTENKO, A. N., and VOLYK, A. D., Ternopol'skaya Oblast' Sanitary-Epidemiological Station, Ternopol'

"Some Data on the Incidence of Toxoplasmosis Among the Population of Ternopol'skaya Oblast"

Kiev, Vrachebnoye Delo, No 5, May 71, pp 145-146

Abstract: Intracutaneous allergy tests for toxoplasmosis carried out in Ternopol'skaya Oblast' yielded positive results in 45.8% of cases. The ratio of positive results in these tests increased from 12% for subjects in the age group up to 15 years to 36.6% for persons 31-55 years old. Among pregnant women tested for toxoplasmosis by the complement fixation reaction during 1962-1965, 19.1% showed a positive reaction. Complement fixation tests indicated that toxoplasmosis occurred predominantly in May-July. The rural population was affected to the greatest extent, but the infection also occurred among persons living in cities who had contact with animals and animal products. Toxoplasmosis is a disease with a natural focus that affects wild and domestic animals including rodents, from which the disease is transmitted to human beings. Results obtained in a study conducted at toxoplasmosis foci indicated that consumption of food products such as milk, raw eggs, etc., played a 1/2

USSR

MAYEVSKIY, A. G., et al., Vrachebnoye Delo, No 5, May 71, pp 145-146

major role in the infection of humans. At 42 foci of acquired toxoplasmosis investigated in 1963, domestic animals (cats, dogs, etc) formed the source of infection of humans in 11 cases. Cases of congenital toxoplasmosis were found.

2/2

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USSR

UDC 639.954

MASHTAKOV, S. M., (DECEASED), DRYEVA, V. P., VOLYNETS, A. P., PROKHORCHIK, R. A., SHCHERBAKOV, V. A., and KUDRYAVTSEV, G. P., *Fiziologicheskoye Deyatviye Nekotorykh Gerbitsidov na Rasteniya* (The Physiological Effect of Certain Herbicides on Plants), Minsk, "Nauka i Tekhnika," 1971, 252 pp.

Translation: Annotation: The book presents results from research on the effect of certain herbicides, gibberallic acid, and chlorochlorinechloride (?) on the biochemical activity of mitochondria and chloroplasts and the exchange of phenol compounds of plants. The physiological activity of a number of free and linked polyphenols is described. The relationship between the effect of herbicides on plants and the content of native phenol compounds and the level of energy potential of the plants being tested is discussed.

The book is intended for scientific associates, graduate students, teachers, and students at universities and agricultural and pedagogical higher educational institutions.

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KASNTAKOV, S. M. (DECEASED), et al., Fiziologicheskoye Deystviye Nekotorykh
Gerbtsaidov na Rasteniya, Minsk, "Nauka i Tekhnika," 1971, 252 pp

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USSR

YASHTAKOV, S. M., (DECEASED), et al., Fiziologicheskoye Deystviye Nekotorykh Gerbitsidov na Rasteniya, Minsk, "Nauka i Tekhnika," 1971, 252 pp

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USSR

MASHTAKOV, S. M., (DECEASED), et al., *Fiziologicheskiye Deystviya Nekotorykh Gerbitsidov na Rasteniya*, Minsk i Tekhnika, 1971, 252 pp

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Under the Influence of Herbicides

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Investigation of the Physiological Activity

of Phenol Compounds

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4/5

USSR

MASHTAKOV, S. M., (DECEASED), et al., *Fiziologicheskiye Deystviya Nekotorykh Gerbitsidov na Rasteniya, Minsk i Tekhnika*, 1971, 252 pp

Chapter 4. The Effects of Chlorchloxinechloride (?)

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5/5

USSR

UDC 546.46'21:539.4.016.3

BONDAR', I. A., VOLYNETS, F. K., YDALOVA, L. V., and USACHEV,
V. P.,

"Physical and Chemical Processes Involved in Heat Treatment of
Polycrystalline Magnesium Oxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 634-
637

Abstract: A study was made of the effect of heat treatment of polycrystalline hot pressed specimens of magnesium oxide containing one wt.% lithium fluoride in air at 700-1300°C on density, grain growth, and transparency. During heat treatment, recrystallization occurred, the activation energy of which was 27.3 kcal/mol. Recrystallization during heat treatment was accompanied by a process of recondensation of particles of the dispersed phase. The activation energy of this process, calculated from the dimensions of the dispersed particles in specimens which underwent various heat treatments, was 22.5 kcal/mol. The specimens of polycrystalline magnesium oxide studied were found to have circular formations larger than grains, inclusions comparable in 1/2

USSR

BONDAR', I. A., et al., Neorganicheskiye Materialy, Vcl 7,
No 4, Apr 71, pp 634-637

size to the dispersed particles, and inclusions on grain boundaries
and in grain boundaries, the dimensions of which were an order
of magnitude less than the dimensions of the grains and vacuum
pores.

2/2

USSR

UDC 666.3.546.46'16

VOLYNETS, F. K., Candidate of Technical Sciences, ANAN'YEVA, G. V., SMIRNAYA,
Ye. P.

"Roentgenostructural Investigation of the Texture of Optical Ceramics KO-1"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 12, December 1971,
pp 10-14

Abstract: On the basis of x-ray investigations (by the method of Debye powder diagrams and pole figures), it is shown that optical ceramics KO-1 (polycrystalline magnesium fluoride), samples of which were obtained at various parameters of the technological process, and in particular, at various pressures (deformation stages) of hot pressing, manifests a fully expressed axial texture, the axis of the texture being the direction of pressure application. It is shown that the texture is formed in the process of compaction of the magnesium fluoride by hot pressing due to plastic deformation of the individual grains.
2 figures. 1 table. 5 references.

1/1

- 82 -

1/2 030 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MECHANISM OF THE THOROUGH COMBUSTION OF IMPURITIES DURING THE
GROWING OF CORUNDUM CRYSTALS IN A HYDROGEN-OXYGEN FLAME -U-
AUTHOR--(02)-VOLYNETS, F.K., TSVETKOVA, N.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKADEMII NAUK SSSR, NEORG. MATER. 1970, 6(2), 271-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CRYSTAL GROWING, CORUNDUM, FLAME, THERMAL OXIDATION, CRYSTAL
IMPURITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1998

STEP NO--UR/0363/70/006/002/G271/0275

CIRC ACCESSION NO--AP0105072

UNCLASSIFIED

2/2 030
CIRC ACCESSION NO--AP0105072

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS OF THOROUGH BURNING OUT OF OXIDES OF V, Y, AND GA, WHICH DIFFER IN THEIR THERMODYNAMIC CHARACTERISTICS, FROM ALUMINA DURING THE GROWTH OF CORUNDUM CRYSTALS IN A H-O FLAME WAS INVESTIGATED EXPTL. THE DEGREE OF BURN OUT OF THE IMPURITIES POINTS TO THE SIGNIFICANT ROLE OF THE GRADIENTS OF THE OXIDN. REON. POTENTIAL OF THE FLAME JET.

UNCLASSIFIED

1/2-015 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THIN LAYER CHROMATOGRAPHY OF PRECIOUS ELEMENTS. SEPARATION OF
CHLORIDE COMPLEXES OF PRECIOUS METALS BY PARTITION CHROMATOGRAPHY -U-
AUTHOR-(03)-VOLNETS, M.P., YERMAKOV, A.N., NIKITINA, L.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHM. 1970, 25(2), 294-300

DATE PUBLISHED----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THIN LAYER CHROMATOGRAPHY, PLATINUM, PALLADIUM, RHODIUM, GOLD,
IRIDIUM, COMPLEX COMPOUND, CHEMICAL SEPARATION, COBALT, COPPER, IRON,
NICKEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0917

STEP NO--UR/0075/70/025/002/0294/0300

CIRC ACCESSION NO--APIO113752

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113752

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIN LAYER CHROMATOG. CAN BE USED SUCCESSFULLY FOR THE RAPID SEPN. OF TRACE AMTS. OF PRECIOUS METALS. MULTICOMPONENT MIXTS. CONTG. PT, PD, RH, IR, AND AU CAN BE SEPD. INTO 3 OR 4 GROUPS BY A PARTITION CHROMATOGRAPHIC METHOD ON SILICA GEL BY USING BU SUB3 PO SUB4, ME SUB2 CO, CYCLOHEXANE, AND MECUET AS MOBILE SOLVENTS. MAX. DIFFERENCES IN THE R SUBF EXIST IN 4N HCL WHEN USING BU SUB3 PO SUB4, IN 6N HCL WHEN USING CYCLOHEXANE, IN 2N HCL WHEN USING ME SUB2 CO, AND IN 2-4N HCL WHEN USING MECUET. THE SEPN. OF NONPRECIOUS METALS (CU, CO, FE, NI) IS POSSIBLE UNDER THE SAME CONDITIONS AS FOR PT METALS. TRACE AMTS. OF AU, PT, AND PD CAN BE DETO. DIRECTLY BY REFLECTANCE DENSITOMETRY WITH A RELATIVE STD. DEVIATION OF 2.9, 18.5, AND 10.2PERCENT, RESP.

FACILITY: INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

UNCLASSIFIED

Pharmacology and Toxicology

USSR

UDC 612.014.4:613.2

PONOMARENKO, N. S., Lt Col Med Serv, TALAN, F. S., and VOLYNETS, M. T.

"Monitoring Toxic Chemicals in Food Products"

Moscow, Vojenno-Meditsinskiy Zhurnal, No 2, 1973, pp 59-60

Abstract: Vegetables procured for military units were tested by thin-layer chromatography and the Shekhter-Galler [transliteration] method for the presence of toxic chemicals, chiefly DDT. Traces within public health standards were detected in 21% of the raw potato, 18% of the fresh and pickled cabbage, and 30% of the prepared vegetables sampled. The higher percentage in prepared vegetables is probably due to addition of meat products containing DDT. DDT was also detected in quantities not exceeding 5 mg/kg in subcutaneous, fatty cellular tissue taken from surgical patients, and up to 0.1-0.6 mg/kg in blood and bile. Military physicians must monitor toxic chemicals in food products constantly and see that farms providing produce to military units comply with toxic chemical use, storage, transport, and certification regulations.

1/1

1/2 036 UNCLASSIFIED PROCESSING DATE--300CT70
TITLE--ELECTROLYTIC METABOLISM IN ULCER DISEASE AND CHRONIC GASTRITIS -U-

AUTHOR-[02]-KANISHCHEV, P.A., VOLYNETS, YE.S.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNAYE DELO, 1970, NR 6, PP 67-70

DATE PUBLISHED---70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTROLYTE, METABOLISM, BLOOD PLASMA, DIGESTIVE SYSTEM
DISEASE, SODIUM, POTASSIUM, DUODENUM, ADRENAL CORTEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1758 STEP NO--UR/0475/TG/000/006/0067/0070

CIRC ACCESSION NO--AP0129126

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0129126

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SUGGESTED THAT ELECTROLYTIC DISTURBANCES (INCREASE OF PLASMA POTASSIUM, CALCIUM, MAGNESIUM, CELLULAR SODIUM, SODIUM POTASSIUM RATIO, DECREASE OF PLASMA SODIUM AND CELLULAR POTASSIUM) IN 520 PATIENTS WITH DUODENAL ULCER AND CHRONIC GASTRITIS DURING EXACERBATION ARE CAUSED MAINLY BY MINERALCORTICOID ADRENAL CORTEX INSUFFICIENCY, WHICH WAS MORE PRONOUNCED IN THE ULCER PATIENT GROUP. IT IS CONCLUDED THAT DIFFERENT PATHOLOGICAL ENTITIES (ULCER DISEASE, CHRONIC GASTRITIS) MAY SIMILARLY EFFECT ELECTROLYTIC METABOLISM.
FACILITY: OTDEL ZABOLEVANIYA ZHELUDKA DNEPROPETROVSKOGO NAUCHNO-ISSLEDOVATEL'SKOGO INSTITUTA GASTROENTEROLOGII.

UNCLASSIFIED

USSR

UDC: 51

BESHENKOVSKIY, B. L., SERGEYEV, Yu. A., VOLYNETS-BUSSET, E. Ya.

"Problems of Determining the Effect on the National Economy Resulting From the Acquisition of Licenses in Associated Sectors"

Problemy opredeleniya narodnokhozyaystvennogo effekta ot priznateniya litsenziy v sopryazhennykh chtaslyakh Tr. TsNII patent. inform. i tekhn.-ekon. issled., ser. 2 (cf. English above. Works of the Central Scientific Research Institute of Patent Information and Technical-Economic Research, Series 2), Moscow, 1971, 106 pp, ill. 30 k. (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V883 K)

Translation: An analysis in the spirit of an intersectoral balance sheet.

1/1

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USSR

UDC 621.396.75

ARRO, I. O., VOLYNKIN, G. N.

"Decreasing the Errors of a Two-Channel Short-Wave Radio Direction Finder with Simultaneous Comparison of Amplitudes Caused by Multiple Waves by Integrating the Channel Voltages"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi.
Vyp. 2 (Materials of the Scientific and Technical Conference. Leningrad
Electrotechnical Communications Institute, Vyp. 2), Leningrad, 1970, pp 73-
76 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G90)

Translation: The possibilities of decreasing the errors of a radio direction finder caused by multiple beams by integrating the channel voltages over the envelope are analyzed. Expressions are obtained for calculating the magnitude of the errors.

1/1

USSR

UDC 659.046.5

BORODIN, D. I., TSIKIN, L. V., YAVOYSKIY, V. I., and VOLYNKIN, V. M.

"Sulfur Removal Through the Gas Phase in a Converter With Bottom Blowing"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS)(Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 172-176

Translation of Abstract: Metal desulfurization in a converter with bottom blowing as a result of sulfur oxidation by oxygen-containing gases is considered.

1/1

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Acc. Nr: A90046552

Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya
Biologicheskaya, 1970, Nr 1, pp 53-57

G. K. SKRYABIN, G. I. GOLOVLEY, L. P. VOL'NAKINA

ON THE QUESTION OF THE METHODS AND CRITERIA OF THE SELECTION OF
PRODUCTIVE CULTURES OF HYDROCARBON ASSIMILATING MICROORGANISMS

Institute of Biochemistry and Physiology of Microorganisms, Pushchino

The basic criteria of selection of highly productive hydrocarbon assimilating cultures — the specific growth rate and productivity have been studied.

It was shown that growing of mixed cultures under continuous conditions with an increasing rate of dilution the washing out of different strains proceeds in accordance with their maximal specific growth rates. Due to such selection a culture becomes concentrated possessing a high specific growth rate.

111

REEL/FRAME
13781815

6

USSR

UDC 620.178.152.42

DROZD, M. S., FEDOROV, A. V., and VOLYNOV, A. N., Volgograd Polytechnic Institute

"Determination of Rockwell Hardness of Metals on Specimens with Curved Surface"

Moscow, Zavodskaya Laboratoriya, No 4, 1973, pp 456-459

Abstract: A system developed for measuring Rockwell hardness directly on the curved surface of a specimen is based on the method developed by A. N. Monoshkov et al., (Metallurgiya, No 13, 1971, p 118), for cylindrical surfaces and expanded for the case of curved surfaces when both curvatures are different from zero. A simple formula is derived for the determination of the standard hardness number HRB by the hardness number HRB' measured on the curved surface. The reliability of the formula was experimentally proved on specimens of various materials with convex and concave spherical and cylindrical surfaces. The correlation of standard and calculated HRB values derived in testing spherical and cylindrical surfaces in both cases revealed correlation coefficients of 0.95. Four figures, two tables, seven formulas.

1/1

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1/2 041

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--ANALYSIS OF THE RESULTS OF SPECTRAL STUDIES OF THE TWILIGHT AUREOLE
OF THE EARTH'S ATMOSPHERE FROM THE SOYUZ 5 SPACECRAFT -U-AUTHOR-(OS)--VOLYNOV, B.V., KONDRATYEV, K.YA., GALTSEV, A.P., SHOKTIY,
D.I., KHRUNOV, YE.V.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, FIZIKA ATMOSFERY I OKEANA, VOL. 6,
APR. 1970, P. 388-411
DATE PUBLISHED----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--SPECTRUM, TWILIGHT, SPECTROPHOTOMETRIC ANALYSIS, SPACEBORNE
ATMOSPHERIC OBSERVATION/(U)SOYUZ 5 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0425

CIRC ACCESSION NO--AP0129650

STEP NO--UR/0362/70/006/000/0388/0411

UNCLASSIFIED

272 041

UNCLASSIFIED

PROCESSING DATE--13NOV70

CERC ACCESSION NO--AP0129650

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUMMARY OF THE RESULTS OF SPECTROPHOTOMETRIC MEASUREMENTS OF THE TWILIGHT AUREOLE OF THE EARTH'S ATMOSPHERE AS FIRST PERFORMED FROM THE SOYUZ 5 SPACECRAFT. AN ANALYSIS IS MADE OF THE EXPERIMENTAL DATA THUS OBTAINED AS A FUNCTION OF WAVELENGTH, PERIGEE HEIGHT OF THE LINE OF SIGHT ABOVE THE EARTH'S SURFACE, ANGLE OF DEPRESSION OF THE SUN, AND OTHER PARAMETERS. THE VERTICAL PROFILES OF THE MONOCHROMATIC BRIGHTNESS OF THE TWILIGHT AUREOLE ARE COMPARED WITH THE RESULTS OF CORRESPONDING THEORETICAL CALCULATIONS FOR ELTERMAN'S (1968) AEROSOL MODEL. COLOR DIAGRAMS AND COLOR PICTURES OF THE TWILIGHT AUREOLE ARE CONSTRUCTED USING THEORETICAL BRIGHTNESS VALUES FOR VARIOUS MODELS OF THE EARTH'S ATMOSPHERE, AND ALSO USING EXPERIMENTAL DATA AND THE RESULTS OF VISUAL OBSERVATIONS CARRIED OUT FROM THE SOYUZ 5 SPACECRAFT. FACILITY: LENINGRADSKIY GOSUDARSTVENNYI UNIVERSITET, LENINGRAD, USSR.

UNCLASSIFIED

1/3 .036

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--ANALYSIS OF THE RESULTS OF SPECTRAL INVESTIGATIONS OF THE TWILIGHT
AUREOLE IN THE EARTH'S ATMOSPHERE FROM THE SOYUZ 5 SPACESHIP, SPECTRAL
AUTHOR--(05)-KONDRATYEV, K.YA., VOLYNOV, B.V., GALTSEV, A.P., SMOKTIY,
O.I., KHRUNOV, YE.V.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, STATE UNIVERSITY; MOSCOW, IZVESTIYA AKADEMII NAUK SSSR,
FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 4, 1970, PP 388-411
DATE PUBLISHED--70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--TWILIGHT, SPACEBORNE ATMOSPHERIC OBSERVATION,
SPECTROPHOTOMETRIC ANALYSIS, ATMOSPHERE/(U)SOYUZ 5 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0366

STEP NO--UR/0362/70/006/004/0388/0411

CIRC ACCESSION NO--APO114658

UNCLASSIFIED

2/3 036

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0114658

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. THIS PAPER PRESENTS THE RESULTS OF SPECTROPHOTOMETRIC INVESTIGATION OF THE TWILIGHT AUREOLE OF THE EARTH'S ATMOSPHERE, MADE FOR THE FIRST TIME FROM THE "SOYUZ-5" SPACESHIP. THE AUTHORS ANALYZE THE COLLECTED EXPERIMENTAL DATA AS A FUNCTION OF WAVELENGTH, PERIGEE ALTITUDE OF THE LINE OF SIGHT ABOVE THE EARTH'S SURFACE, ANGLE OF SOLAR DEPRESSION AND OTHER PARAMETERS. THIS IS FOLLOWED BY A COMPARISON OF THE VERTICAL PROFILES OF MONOCHROMATIC BRIGHTNESS OF THE TWILIGHT AUREOLE WITH THE RESULTS OF CORRESPONDING THEORETICAL COMPUTATIONS FOR THE L. ELTERMAN AEROSOL MODEL (1968). COLOR DIAGRAMS WERE CONSTRUCTED FOR THE TWILIGHT AUREOLE USING THE THEORETICAL BRIGHTNESS VALUES FOR DIFFERENT MODELS OF THE EARTH'S ATMOSPHERE AND EXPERIMENTAL DATA AND THE RESULTS OF VISUAL OBSERVATIONS MADE FROM THE "SOYUZ-5". THE PAPER HAS THE FOLLOWING BASIC SECTIONS: 1) OPTICAL CHARACTERISTICS OF THE MANUAL SPECTROGRAPH AND METHOD FOR PROCESSING SPECTROGRAMS; 2) BASIC RESULTS OF VISUAL OBSERVATIONS AND SPECTROPHOTOMETRIC STUDY OF THE TWILIGHT AUREOLE OF THE EARTH'S ATMOSPHERE; 3) THEORETICAL MODEL OF THE FIELD OF SPECTRAL BRIGHTNESS OF THE TWILIGHT AUREOLE IN THE EARTH'S ATMOSPHERE; 4) MOLECULAR ATMOSPHERE; 5) MOLECULAR ATMOSPHERE IN PRESENCE OF AEROSOL PARTICLES; 6) MOLECULAR ATMOSPHERE IN THE PRESENCE OF AEROSOL PARTICLES AND OZONE; 7) COMPARATIVE ANALYSIS OF COMPUTED AND EXPERIMENTAL DATA FROM SPECTROPHOTOMETRIC STUDY OF THE TWILIGHT AUREOLE. MOST IMPORTANTLY, THE STUDY REVEALED THAT IT IS POSSIBLE TO OBTAIN RELIABLE VERTICAL PROFILES OF THE AEROSOL SCATTERING COEFFICIENT FROM SPACESHIPS.

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ABSTRACT/EXTRACT--THE METHOD IS EFFECTIVE IN ANALYZING THE VERTICAL
DISTRIBUTION OF OPTICALLY IMPORTANT ATMOSPHERIC COMPONENTS.

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Visual and Instrumental Observations of Twilight Aureole

(Abstract: "Some Results of Visual Observations and Spectrophotometric Measurements of the Twilight Aureole of the Earth's Atmosphere from the 'Soyuz-5' Spaceship," by K. Ya. Kondrat'yev, Corresponding Member, Academy of Sciences USSR, B. V. Volynov, A. P. Gal'tsev, V. V. Kol'tsov, O. I. Smoktiy and Ye. V. Khrunov, Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp. 327-330)

The program for "Soyuz-5" included an optical experiment in space for studying the spectral (color), angular and spatial evolution of the brightness picture of the twilight atmosphere. This program included simultaneous photographic and spectrophotometric studies of the twilight aureole of the earth's atmosphere in the wavelength range 400-650 m μ , accompanied by visual observations. The program for working with the manual spectrograph provided for a survey of the twilight aureole of the earth's atmosphere in the direction of the sun from the time of appearance of the aureole until the total emergence of the spaceship on the illuminated side of the earth. The twilight aureole was also photographed on black-and-white and color film. Visual observations included an evalua-

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tion of the vertical evolution of brightness and color of the twilight aureole as the sun emerged from below the horizon. Some of the results can be summarized as follows. Near the earth's surface the principal contribution to brightness of the twilight aureole is from long-wave radiation. With an increase in the altitude of the sighted layer atmospheric density decreases and the brightness of the twilight aureole is at a wavelength of $\sim 480 \text{ m}\mu$. A brightness minimum is observed at a wavelength of $\sim 600 \text{ m}\mu$, caused by ozone absorption in the Chappuis band. The depth of this minimum is dependent on the altitude of the particular layer of the atmosphere above the earth's surface. Spectral brightness is greatly dependent on the azimuth of the direction of sighting and the angle of solar depression, sharply increasing with a decrease of the latter. The altitude corresponding to the spectral brightness maximum is also dependent on the angle of solar depression and wavelength, decreasing with an increase of the latter.

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L. Velynskaya, E. M.; Dombrovskii, A. V. (Chernovits
Gos. Univ., Chernovtsy, USSR) Zh. Obshch. Khim. 1970, 40-

(1), 48-57 (Russ). Heating 0.9 g BrCH₂Ac and 13.5 g Ph₃P in MePh 2 hr gave 82% Ph₃PCH₂AcBr, m. 212-14°, while the filtrate gave Ph₃PO. Similar reaction of AcCHBrMe gave 66% Ph₃PCHMeAcBr, m. 221-2.5°, and some Ph₃PO; BrCH₂CO-CH₂CMe₃ similarly gave 82% Ph₃PCH₂COCHMe₂Br, m. 217-19°. Similarly were prep'd. Ph₃PCHR'CORBr (% yield, R, R', and m.p. shown): 80, Me, H, 234-6°; 55, CMe₃, H, 233-4°; 97, Me, Br, 127-30°; 97, Me, I, 113-15°; 99, CMe₃, Br, 103.5-7.0°; 84, CMe₃, I, 185-7°. Treating the aboveonium salts with EtONa in EtOH overnight gave RCOCR':PPh₃ (I) (R, R', and m.p. shown) in 65-95% yields: Me, H, 200-2°; Me, Me, 170.5-1.5°; CMe₃, H, 181-2°; Me, Cl, 102-3°; Me, Br, 144.5-6.0°; Me, I, 146-7°; Me, CNS, 148-9°; Me₂C, Cl, 114-10°; Me₂C, Br, 140-1.5°; Me₂C, I, 164.5-6°; Me₂C, CNS, 143-3.5°; Me₂C, MeOCH₂, 98-101°; Me, p-O₂NC₆H₄CO, 139-41°; Me, PhCH₂-CO, 78.5-8°; Me, PhCH₂-CHCO, 187-9°; Me, 2-furoyl, 191-3°; Me₂C, p-O₂NC₆H₄CO, 141-3°; Me₂C, PhCH₂-CO, 72-4°; Me₂C, PhCH₂-CHCO, 189-71°; Me₂C, 2-furoyl, 174-5°. (R = Me, R' = Cl, Br, I, CNS) are easily interconvertible through normal ion-exchange reactions. I (R = Me or Me₂C; R' = H), react with acyl halides to form the analogs with R = Me or Me₂C and R' = acyl groups shown above, in a transacylation reaction. Thus Ph₃PCH₂Ac (6.2 g) and 2.4 g Et₃N in

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Abstracting Service:

CHEMICAL ABST. 5/70

Ref. Code:

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100817b Acylalkylenetriphenylphosphoranes.

L. Volynskaya, E. M.; Dombrovskii, A. V.

Gos. Univ., Chernovtsy, USSR. Zb. Obozren. Khim. 1970, 40-

(1), 48-57 (Russ). Heating 6.9 g BrCH₂Ac and 13.5 g Ph₃P in
MePh 2 hr gave 82% Ph₃PCH₂Br.

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CHCl₃ at 8–10° treated 2 hr with 6 g PhICl₃ gave Ph₂P:CClAc described above, while bromination in CCl₄ gave the brominated analog described above; treating AcCHBrPPh₂Br with KOH in aq. MeOH 2.5 hr gave AcCBr:PPh₂ described above; similarly was prep'd. the Me₂C analog. The iodinated analogs were also prep'd. from the phosphonium salts and aq. Na₂CO₃ in Me₂NCHO. Reactions of acyl chlorides with the unsat'd. phosphoranes were run in refluxing C₆H₆ 10–15 min or several hr at room temp. Me₂CCOCH₂:PPh₂ and MeOCH₂Cl gave in EtOAc Me₂CCO₂(CH₂OMe):PPh₂ identical to the above described. Adding t. 3 g AcCH₂:PPh₂ in C₆H₆ over 20 min, 0.6 g AcCl in C₆H₆ gave in 1 hr RCO₂CR¹:CHPPh₂Cl (R = Me = R¹, m. 239–41°); similarly were prep'd. the analogs (R, R¹, and m.p. shown: Me, CMe₃, 230–1°; Ph, Me, 96–7°; Ph, CMe₃, 92–3°). These salts with EtONa-EtOH 2–3 hr gave 100% corresponding unsat'd. phosphoranes described above. Treating a slight excess of phenylglyoxal with the unsat'd. acylphosphoranes gave overnight RCO₂X:CHR¹ (R, X, R¹, and m.p. shown) in 50–37% yields: Me, H, Bz, 130–1°; Me, Me, Bz, 145–7°; CMe₃, H, Br, 156–7°. Heating the unsat'd. acylphosphoranes with p-O₂NC₆H₄CHO in MePh 6 hr gave the analogs (R, X, R¹, and m.p. shown): Me, H, p-O₂NC₆H₄, 103.5–6°; Me, Me, p-O₂NC₆H₄, 88–91°; CMe₃, H, p-O₂NC₆H₄, 99–101.5°; Me, Br, p-O₂NC₆H₄, 93–7°; CMe₃, Br, p-O₂NC₆H₄, 87–9°. Uv and ir spectra are shown.

G. M. Koselapoff

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Titanium

USSR

UDC 669.295.05

STARSHENKO, V. I., VOLYNSKAYA, M. P., and LESEDEV, G. N.

"The State of Analytic Control in Cleaning Titanium Tetrachloride"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 54-60

Translation: Methods of analyzing titanium tetrachloride are systematized. The limits of sensitivity in determining impurities in titanium tetrachloride are used to evaluate their effect on increasing the hardness of titanium sponge. It is shown that the coefficient of analytical indeterminacy as to the composition of cleaned titanium tetrachloride increases the depth of its cleaning. The controlled impurities in the cleaned titanium tetrachloride do not characterize the qualities of cleaning, while the sensitivity in determining the total content of oxygen, nitrogen, carbon, sulphur, and hydrogen does not meet requirements for depth of cleaning titanium tetrachloride. The necessary depth of cleaning and limit to sensitivity in defining impurities is $1 \cdot 10^{-4}$ percent (by mass). Three tables and 13 bibliographical entries.

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